Description of a new water mite species of the genus *Pionacercus* Piersig, 1894 from NE Russia (Acariformes: Pionidae)

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An illustrated description of male, female and larva of *Pionacercus tundrosum* sp. n. from small tundra reservoirs in Magadan Prov. is given.

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Pionacercus tundrosum sp. n.
(Figs 1-29)

= *Pionacercus leuckarti,* deutonymph: Tuzovskij, 1990: 203-204, Figs 146, 1-7.

Holotype. ♂, **Russia,** *Magadan Prov.,* Chaun Distr., small tundra lake on the right bank of the river Pucheweem, 18 km upstream of the mouth, 28.VII.1982 (P.V. Tuzovskij), slide no. 4492, deposited in the author's collection.

Paratypes. **Ru ssia,** *M agadan Prov.*: 6 ♂, 10 ♀, 7 deutonymphs, in the same reservoir as holotype, July-August 1982; 14 ♀ and 3 deutonymphs, Anadyr Distr., small sedge-sphagnum tundra swamps on the left bank of the river Anadyr, 5-10 km upstream of village Markovo, July-September 1981.

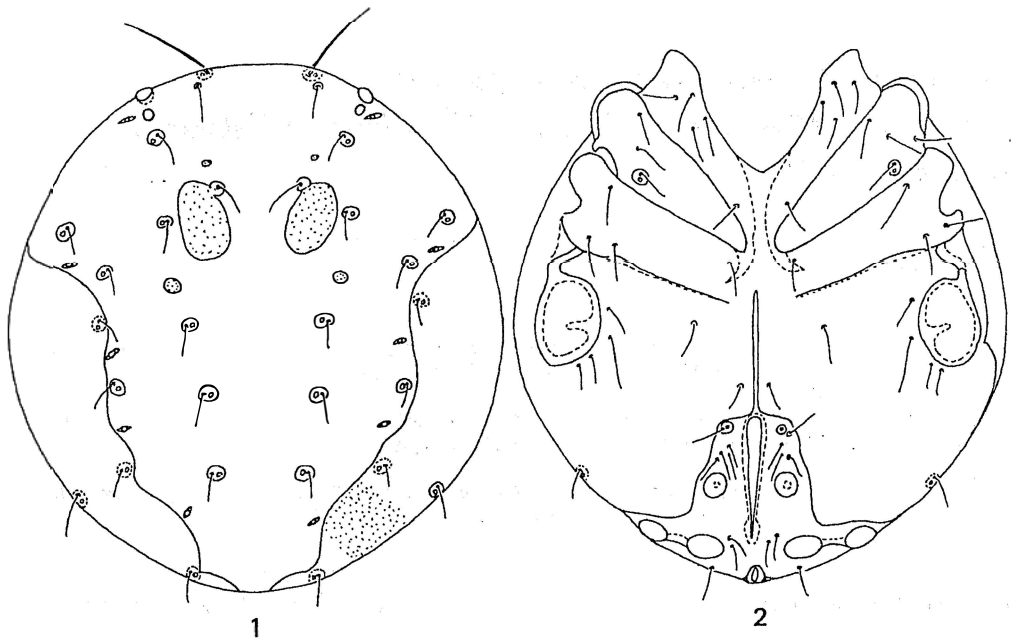
Description (nomenclature of body setae according to Tuzovskij, 1987). *Male* (Figs 1-9). Colour brown. Body almost round. Setae *Fch* long (Fig. 1). Large part of body surface soft, with thin wrinkles. Fore part of dorsum with 3 pairs of medial plates: tiny anterior, large intermediate and small posterior. Bases of setae *Oi* in posteromedial corners of intermediate plates. Lateral parts of dorsal surface with wide strips of secondary sclerotization being processes of ventral shield. Setae *Hi*, *Le*, *Se* and *Ci* situated on these processes. Width of lateral processes of ventral shield gradually decreasing to posterior end of body. All 5 pairs of lyriform organs on dorsal side of body.

Coxae of legs, especially hind ones, enlarged, fused with each other and with external genital organ and forming a monolithic shield, laterodorsal processes of which are turned onto dorsal surface (Fig. 2). Fore coxae fused, with suture between them disappearring; coxae II with distinct borders on whole perimeter. Suture line between coxae III and IV incomplete, slightly not reaching their medial margin. Medial border between coxae IV complete, that between coxae III distinct only in their hind part. Posteromedial parts of coxae IV forming a deep, reaching to their middle, rectangular notch, in which the anterior pair of genital acetabula is situated. Middle and hind acetabula close together, situated at one level at the very apex of body. Genital opening long and narrow.

Basal segment of chelicera (Fig. 3) strongly thickened and curved in proximal part and tapering to distal end. Mobile segment of chelicera short, crescent-shaped.

Pedipalps (Fig. 4) short and massive. Ventral margin of pedipalp femur weakly concave, with two groups of dorsal setae: proximal, composed of 3-4 setae, and dorsodistal, composed of 2 setae. External lateral seta on pedipalp genu twice as long as internal. In tibia of pedipalp, ventral margin straight, laterodorsal surface covered with numerous solenidia, bases of ventral hairs situated at the very distal margin of segment. Distolateral spine on pedipalp tibia (Fig. 5) 0.25 times as long as tarsus.

Ambulacra of two anterior pairs of legs (Fig. 6) each with a well-developed plate and a wide internal and a thin external tooth of subequal length. Ambulacra of legs III with short plates and teeth, slightly differing from each other in shapes and sizes (Fig. 7). Genu of leg IV (Fig. 8) short; tibia with two rows of swimming hairs, its dorsodistal part with short thick



Figs 1, 2. *Pionacercus tundrosum* sp. n., male. **1**, dorsal surface; **2**, ventral surface.

setae splitted at apex. Tibia of leg IV with very long swimming setae projecting well beyond distal part of tarsus and, in dorsodistal part, with several short, thick setae bifurcate at apex. Ventral edge of tarsus IV (Fig. 9) with 10-12 short thick setae rounded at apex, of which 3-4 anterior setae usually the shortest and two distal setae situated somewhat apart.

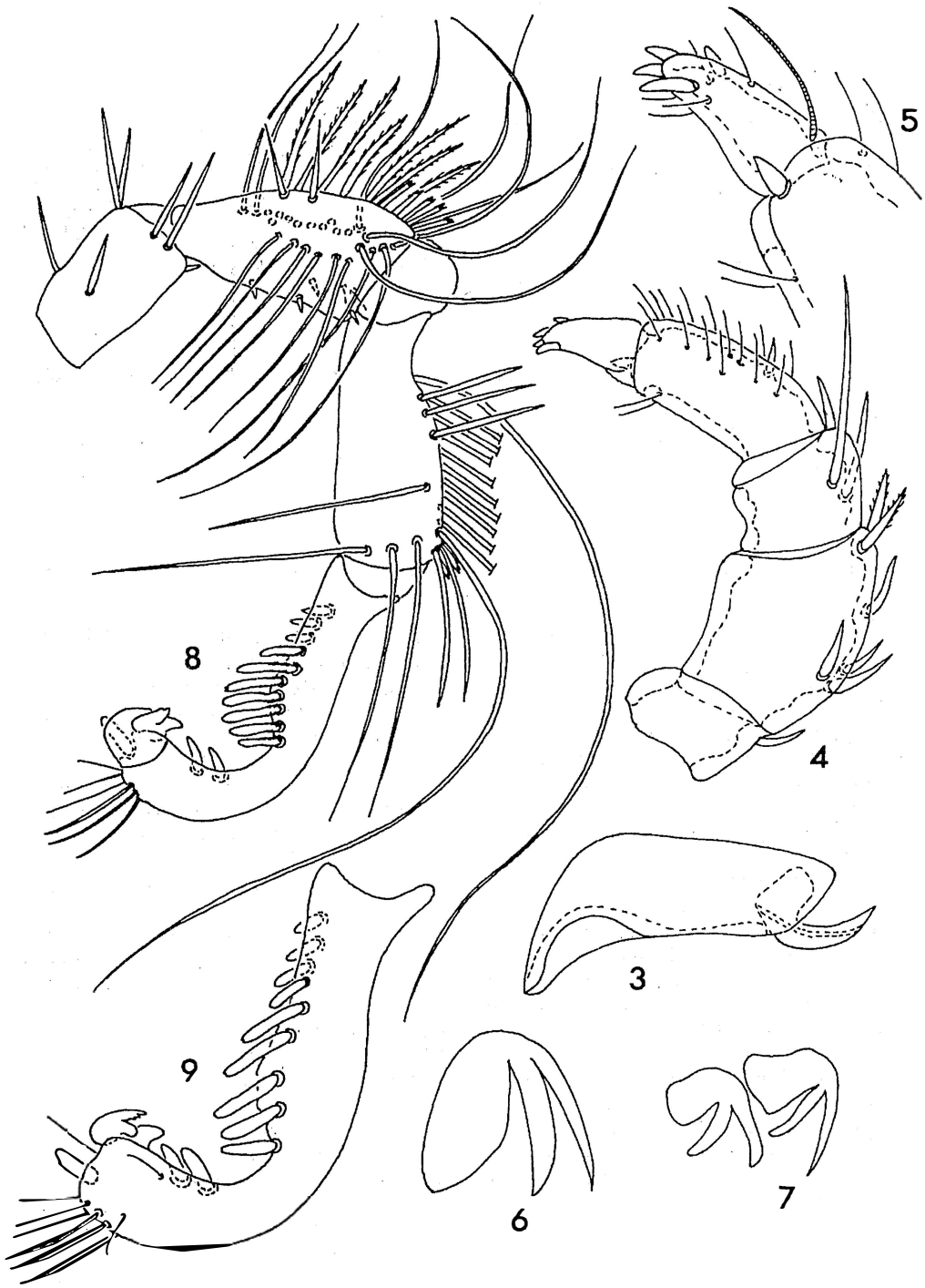
Measurements (μm). Length: body 450-515; basal segment of chelicera 120-130; mobile segment of chelicera 40; segments of pedipalp: 25, 80-82, 40, 73-80, 30; segments of legs: I – 48-57, 73-80, 80-90, 105-110, 115-125, 145-155; II – 55-65, 90-100, 85-90, 115-120, 145-155, 160-170; III – 65-75, 80-90, 70-75, 80-85, 120-125, 115-125; IV – 105-115, 75-90, 70-80, 120-140, 130-145, 155-165.

Female (Figs 10-17). Body almost round; integuments soft; dorsum (Fig. 10) with two well-expressed pairs of plates only: large oblong anterior and small transverse intermediate. In addition, small sclerites present in front of setae *Oi* and setae *Li*. Bases of setae *Oi* on soft integuments. All 5 pairs of lyriform organs situated along lateral margins of body.

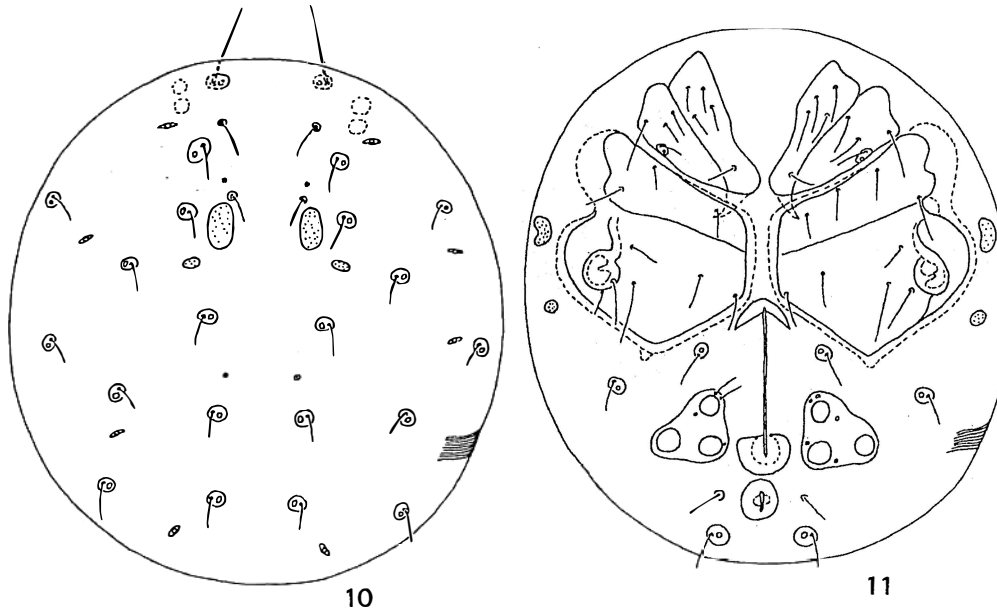
Anterior groups of coxae (Fig. 11) with well-developed apodemes. Suture line between coxae III and IV complete; medial margin of coxae III only slightly shorter than that of coxae IV. Posteromedial margins of coxae IV straight; apodemes very short or almost absent. Width of coxa IV equal to combined length of coxae III and IV. Two pairs of plates lateral to hind coxae, anterior ones larger than posterior. Genital plates triangular (Figs 12, 13), almost half as long as genital aperture. Anterior genital sclerite short and wide, with convex anterior and concave posterior margin. Posterior genital sclerite large, more or less rectangular, wider than long. Genital acetabula of moderate size, occupying no more than half of area of plates. Distance between acetabula usually greater than diameter of one acetabula (Fig. 12), but between fore and middle acetabula sometimes smaller (Fig. 13). Excretory pore opens on oval plate (Fig. 14). Pedipalp (Figs 15, 16) as in male, but tibia with a few solenidia.

Terminal segments of anterior legs of equal thickness along the whole length (Fig. 17). Swimming setae present only on tibiae of all legs: 2 on tibia I, 3-4 on tibia II, 5-6 on tibia III and 6-7 on tibia IV; setae on tibia I short, on tibia II-IV long. Ambulacrum with a wide internal and a thin external tooth (Fig. 18).

Measurements (μm). Length: body 610-695; genital plate 80-90 (its width 80-90); basal segment of chelicera 120-140; mobile segment of chelicera 40-50; segments of pedipalp: 25-35, 80-105, 40-60, 75-83, 30-45; segments of legs: I – 55-60, 80-90, 80-90, 105-110, 105-115,



Figs 3-9. *Pionacercus tundrosum* sp. n., male. **3**, chelicera; **4**, pedipalp; **5**, distal part of tibia and tarsus of pedipalp; **6**, claw of leg I; **7**, claws of leg III; **8**, femur II, genu, tibia and tarsus of leg IV; **9**, tarsus of leg IV.



Figs 10, 11. *Pionacercus tundrosum* sp. n., female. **10**, dorsal surface; **11**, ventral surface.

130-140; II – 55-75, 80-90, 90-100, 115-120, 130-145, 145-155; III – 65-75, 80-90, 85-90, 120-130, 145-165, 155-165; IV – 95-115, 95-100, 110-115, 155-165, 165-180, 160-I80.

Larva (Figs 19-29). Dorsal shield (Fig. 19) elongate and strongly convex (so that 1 or 2 folds are formed in preparations), its anterior margin straight, anterolateral hollows distinct. Setae *Fch* slightly longer than other setae of dorsal shield.

Apodemes of anterior coxae poorly developed; apodemes 2 and 3 and transverse muscle attachment scars in posteromedial parts of coxae III absent (Fig. 20). Suture line between coxae II and III incomplete, by about 1/4 not reaching their medial margin. Internal setae on coxae I shorter than external. Bases of setae on coxae III situated a little beyond suture line between coxae II and III. Excretory pore opens close to middle or in hind part of anal plate, the latter varying in shape (Figs 20-22). Anterolateral areas of anal plate usually more or less convex; its hind margin almost straight, but infrequently with a small median projection.

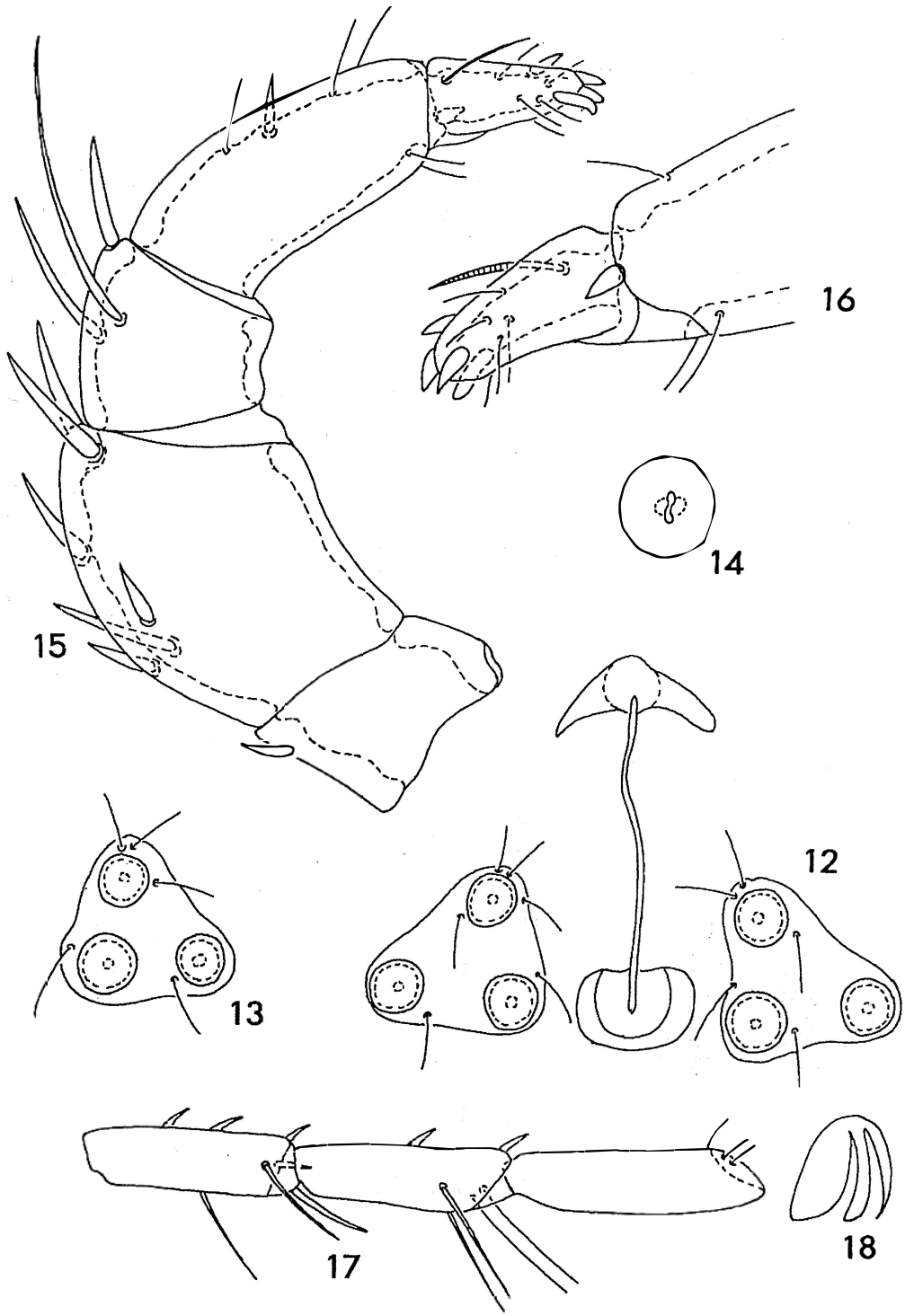
Basal segments of chelicera strongly thickened in proximal part (Fig. 23); suture line between them distinct along their whole length.

Pedipalps (Fig. 24) very short. Dorsal margin of pedipalp femur long and ventral margin very short. Genu of pedipalp armed with two setae: long lateral and short dorsodistal. All setae on tibia and tarsus of pedipalp subequal in length.

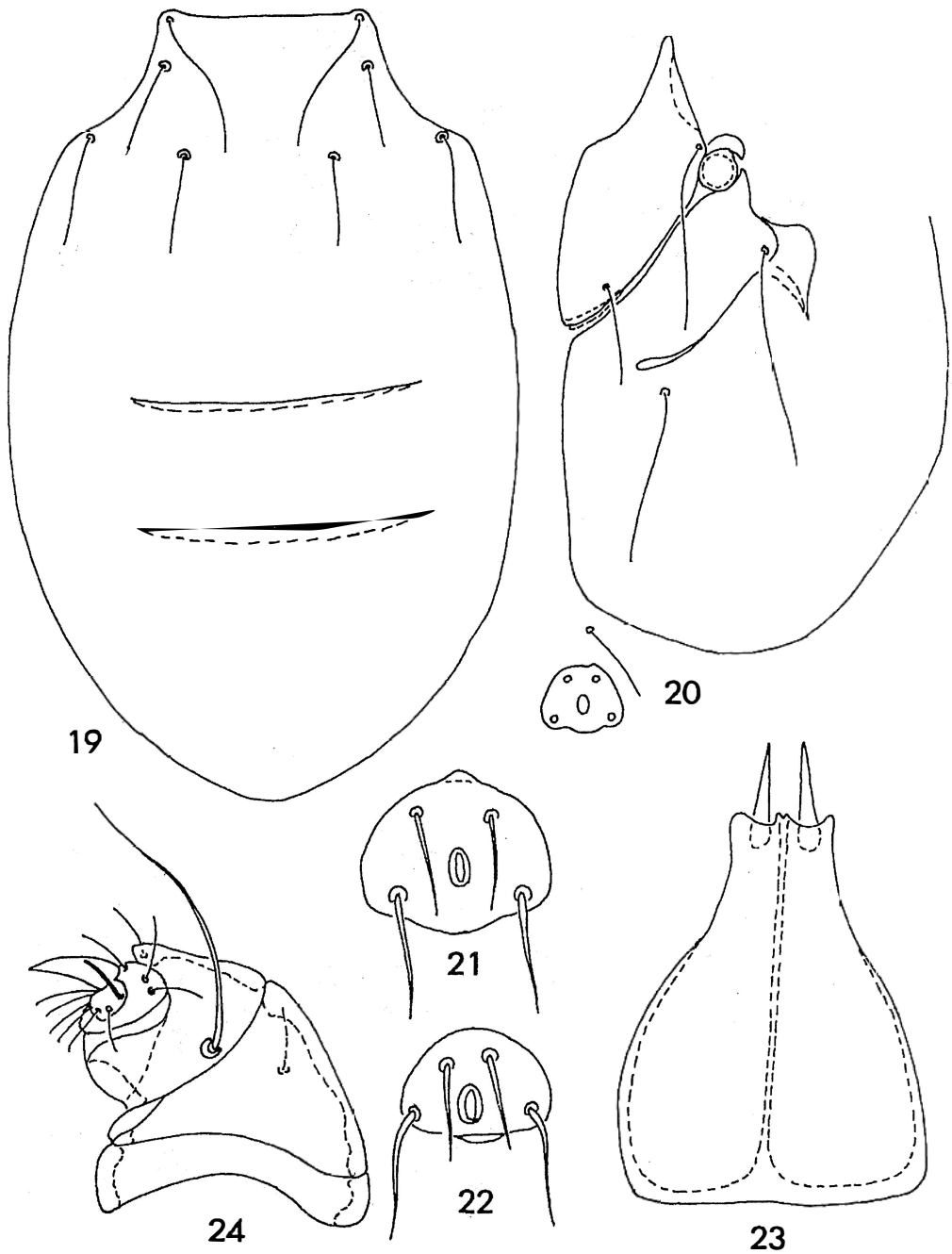
Shape, number and arrangement of setae on leg segments (except for eupathidia and famuli) as in Figs 25-27. Solenidia on genu and tibia of legs I subequal in length and slightly shorter than solenidion on tarsus I (Fig. 25). Solenidion on genu II short. Solenidion of tibia II almost twice as long as solenidion on genu II, but slightly shorter than solenidion on tarsus II (Fig. 26). Solenidia on genu and tibia of leg III (Fig. 27) rather short and subequal in length. Formula of spine-like setae on segments of legs as follows: I – 0, 2, 1, 2, 0; II – 0, 2, 2, 4, 0; III – 0, 2, 2, 4, 0.

On tarsi of legs I and II, empodia bent at a direct angle and ambulacrae only slightly bent (Fig. 28). Distal part of empodium III turned onto ventral side at obtuse angle (Fig. 29).

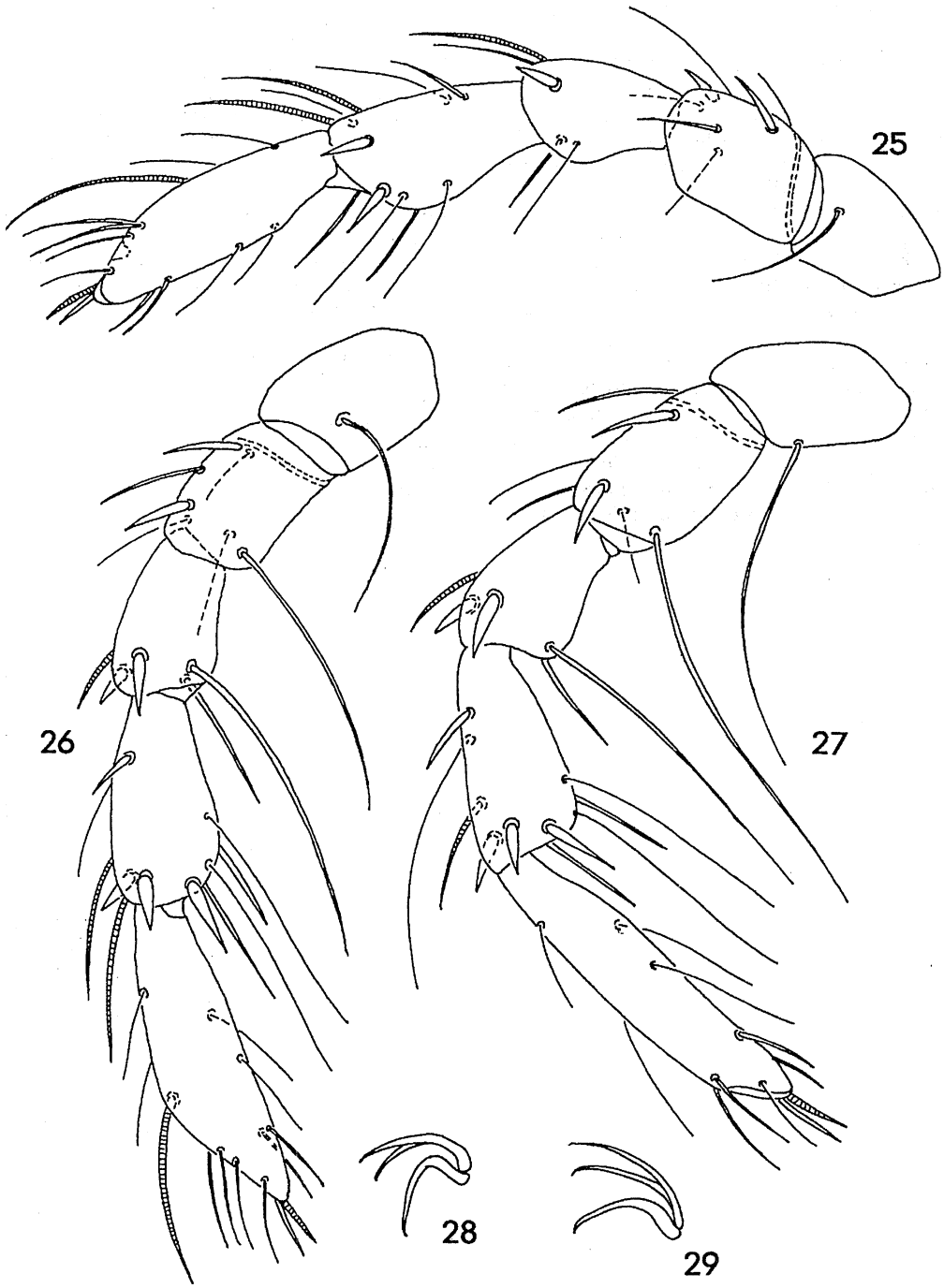
Measurements (μm). Length of dorsal shield 270-290, its width 175-190; length of anal plate 22-25, its width 28-32; distance between setae *Ai* 9-12; distance between setae *Ae* 19-22; length of basal segment of chelicera 60-65; length of mobile segment of chelicera 15-20; length of segments of pedipalp: 7-10, 32-34, 20-22, 6-8, 4-5; length of segments of legs: I – 30-35, 30-35, 30-35, 35-42, 50-55; II – 30-40, 35-40, 30-40, 40-45, 60-65; III – 35-40, 35-40, 35-40, 48-51, 65-75.



Figs 12-18. *Pionacercus tundrosum* sp. n., female. **12**, external genital organ; **13**, genital plate; **14**, anal plate; **15**, pedipalp; **16**, distal part of tibia and tarsus of pedipalp; **17**, genu, tibia and tarsus of leg I; **18**, claw of leg I.



Figs 19-24. *Pionacercus tundrosum* sp. n., larva. **19**, dorsal shield; **20**, left part of ventral surface; **21-22**, anal plate; **23**, chelicera; **24**, pedipalp.



Figs 25-29. *Pionacercus tundrosum* sp. n., larva. **25**, leg I; **26**, leg II; **27**, leg III; **28**, claws of tarsus I; **29**, claws of tarsus III.

Larva not parasitic and transforming into deutonymph without leaving the egg. For examination, larvae were extracted from egg shells.

Comparison. The species is similar to *P. leuckarti,* in which the larva is also not parasitic (Lundblad, 1927). The male of *P. tundrosum* especially differs from *P. leuckarti* in the weaker sclerotization of dorsal surface and deeper genital hollow reaching to middle of hind coxae (in male of *P. leuckarti*, the whole dorsum is covered by monolithic dorsal shield, and the genital hollow is rather short and does not reach the middle of coxae III). The female *P. tundrosum* is characterized by short and wide coxae IV with straight posteromedial margins, large posterior genital sclerite, and ventral hairs on tibia pedipalp situated at the very apex of the segment (in female of *P. leuckarti*, coxae IV with concave posteromedial margins and longer than wide, posterior genital sclerite small, and ventral hairs on tibia pedipalp situated closer to the middle of the segment).

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